

2003
Alaska Fire Weather Program
Annual Operating Plan
for
National Weather Service, Alaska Region (NWS)
Alaska Fire Service (AFS)
U.S. Forest Service, Region 10 (USFS), and
State of Alaska, Division of Forestry (DOF)
Alaska Wildland Fire Coordinating Group (AWFCG)

A. Purpose

To describe the roles, responsibilities and operational procedures of NWS, AFS, USFS and DOF personnel in support of the 2003 Alaska Fire Weather Program, to ensure effective use of NWS fire weather products, and establish responsibilities of the Alaska Interagency Coordination Center (AICC) fire weather meteorologist.

Authorities. This Plan is maintained and coordinated by the Fire Weather Committee of the Alaska Wildland Fire Coordination Group (Appendix A). The roles described in this Operating Plan are intended to be flexible and allow for changing conditions of personnel, workload, and weather hazards.

B. Operational Guidelines

April 7 through August 29 will be the principal operating period for the Alaska Fire Weather Program. Starting and ending dates are subject to the fire weather threat.

C. NWS Responsibilities

1. The NWS will provide a Regional Fire Weather Coordinator and fire weather focal points for the principal operating period at the Anchorage, Fairbanks, and Juneau Weather Forecast Offices (WFO). The fire weather focal points and Lead Forecasters will be responsible for timely delivery and quality of fire weather products and services from their WFOs.
2. Consistent with the Interagency Agreement for Meteorological Services, the NWS also will provide the following services:
 - a. Routine daily fire weather forecasts, outlooks and discussions. Unless wildfire conditions exist or are anticipated, fire weather products will not be provided for forecast zones 135, 181, 185, 191, 195, 201-207, 211 and 213. The forecast will include information (as described below) for the first three periods for morning forecasts and first four periods for afternoon forecasts. The forecast also will include information for days 3 through 5. [Note: the Fire Weather Program Time Line for Products and Services is listed in Appendix C, the Daily Schedule for Products and Services is listed in Appendix D, and an example of the Fire Weather Forecast is included as Appendix H]. Details about product format are provided below.
 - S** Morning and afternoon Fire Weather Forecasts will include information on sky condition and weather, relative humidity, wind speed and direction, and potential for wet and/or dry thunderstorms.
 - S** Red Flag Warnings and Fire Weather Watches (details in section c.2.d., product examples in Appendix I) will be headlined at the top of the appropriate fire weather zone forecast. The headline will specify the area, time period, and conditions covered by the watch/warning.

S The fire weather forecast zones will be geographically the same as the public forecast zones. Fire weather zone names, descriptions and a map of the fire weather zones are given in Appendix E.

- b. The NWS will maintain, and update daily, the Alaska Fire Weather section on the NWS Alaska Region Headquarters website (<http://www.arh.noaa.gov>). The Fire Weather section will include daily fire weather forecasts and graphics. Any changes to the content or display of the website information should be coordinated with the AICC.
- c. Weather observations.
Daily/hourly observations for ASOS/AWOS stations will be available from a file transfer protocol (FTP) location determined by local procedures.
- d. Red Flag Warnings and Fire Weather Watches.
The notification and issuance of Red Flag Warnings and Fire Weather Watches will be the number one priority of the fire weather program. Red Flag Warnings should be issued for Red Flag Warning conditions forecast in the first 24 hours of the forecast period. Fire Weather Watches should be issued for Red Flag Warning conditions forecast beyond the first 24 hours of the forecast period.

Red Flag Warning/Fire Weather Watch conditions include one or more of the following:

Winds ≥ 25 mph and Relative Humidity $\leq 40\%$
Winds ≥ 20 mph and Relative Humidity $\leq 15\%$
Relative Humidity $\leq 10\%$
Dry Thunderstorms < 0.10 " rainfall

WFOs will consult the AICC Intelligence Section (907-356-5691/5671) when Red Flag Warnings or Fire Weather Watches are considered. Consultation and notification calls may be the same. The AICC or its designated Regional Area Contact is responsible for determining if fuel conditions are consistent with issuing the Warning/Watch. Fuel conditions are critical to the Warning/Watch issuance decision. If fuel condition consultation with the AICC is not possible, the Warning/Watch will be issued if the above meteorological Red Flag Warning/Fire Weather Watch conditions are anticipated.

In addition to headlining the Warning/Watch in the Fire Weather Forecast, the Warning/Watch information also will be issued as a separate product and posted to the NWS Alaska Region Headquarters website, Fire Weather Section, under Red Flag Warning/Fire Weather Watch. The AICC and local dispatch office should be telephoned upon issuance of the Warning/Watch and, if time permits, the Warning/Watch also should be sent to the AICC by facsimile.

- e. Spot forecasts.
Incidents will submit requests for spot forecasts directly to the WFO having spot forecast responsibility for the location. WFO fire weather zone responsibility is listed in Appendix E. Completed forecasts are posted to the website and faxed to the originating Incident using a standardized format.

WFO spot forecast issuance should take priority over routine fire weather forecasts.

- f. Prescribed burn forecasts.

The same procedures apply for prescribed burn forecasts as spot forecasts.

- g. Smoke management forecasts and information.

The transport wind and the mixing height, required information for smoke management, should be included in spot and prescribed burn fire forecasts.

Forecast information on smoke from wildfires should be included in routine fire weather forecasts during the relevant forecast period and/or in the forecast discussion.

- h. Consultation and technical advice.

The WFO should provide requested information and advice as urgency of situation and operational time constraints dictate.

- i. Amendments/updates.

Forecasts, Red Flag Warnings, and Fire Weather Watches should be updated according to the criteria listed in Appendix F. The spot forecast is a one-time site specific product which is not routinely updated. Spot forecasts should be updated when representative observations are available to the forecaster and he/she is confident that an update could affect fire suppression or prescribed burning operations and/or the safety of personnel. Incident/land management personnel may contact the appropriate WFO for a spot update if forecast conditions appear unrepresentative of the actual weather conditions.

- j. Fire weather training.

Upon the request of the AICC, NWS staff should assist in teaching sessions containing fire weather modules.

- k. Special meteorological services.

Any additional meteorological services not explicitly described in this Plan may be requested by the AICC through the Regional Fire Weather Coordinator.

During emergency situations outside of administrative duty hours (8 am - 5pm Monday through Friday), requests should be directed to the WFO Fire Weather focal point or lead forecaster (see Appendix B).

- 3. In addition, the NWS will augment the above services by providing the following:

- a. Automated graphic products available via the Internet.

- b. Briefings.

NWS will provide a duty meteorologist responsible for fire weather forecasting, available for teleconference briefings during conditions of increased fire danger or activity. Briefings will pertain to the WFO Anchorage area of forecast responsibility. IMET support may be necessary to fulfill these WFO functions. The frequency of briefings, related to fire danger Planning Levels as described in Appendix L, follows:

Planning Levels I and II	See below
Planning Level III	3-5/wk (Monday, Wednesday, Friday)
Planning Level IV	5-7/wk (Monday through Friday)
Planning Level V	7/wk

For Planning Levels I and II, fire management agencies may call the WFO to request a briefing if needed. Other event driven briefings may be requested through the AICC, or initiated by the NWS.

- c. Forecasted maximum temperature, minimum relative humidity and wind speed for daily input into the Fire Weather Index Program.
- d. End of Season Report.

The report should include an overview and evaluation of the program, a formal verification of the 2003 season forecast performance (based on guidelines provided in NWS Instruction 10-404), recommendations for future program development, and a synopsis of the season's weather patterns, highlighting significant weather events and their effect.

The report will be prepared by WFO Fire Weather focal points in Anchorage, Fairbanks and Juneau and forwarded to the NWS Regional Fire Weather Coordinator. The Regional Fire Weather Coordinator will prepare a cover letter and distribute the report to the NWS National Fire Weather Program Manager in Boise ID and members of the Alaska Wildland Fire Coordinating Group/Fire Weather Committee. The report should be available by January 15, 2004.

D. Alaska Interagency Coordination Center Meteorologist (AICC)

The AICC Fire Weather Meteorologist is based at the AICC in Fairbanks. Her/his duties are to value-add upon the products and services furnished by the NWS. The AICC Meteorologist will be available to all federal and state agencies to consult regarding fire weather and other long range weather issues.

Her/his duties will include, but are not limited to:

- 1. Weekly and Monthly Fire Weather and Fire Danger Outlooks.

AICC will prepare weekly reports and post them to the AFS website.

- 2. The AICC Meteorologist will provide monthly drought condition reports. Drought condition reports will be updated weekly if drought conditions dictate.
- 3. Air Quality and Drought Issues: Air quality and drought information will be routinely assessed by the AICC meteorologist.
- 4. Research.
- 5. Program development.
- 6. Statewide Briefings.

Statewide Briefings will be conducted by the AICC Meteorologist. These briefings will be held Monday through Friday. Interested agencies will dial into an 800 number. The briefing will discuss statewide conditions and refer to graphic products displayed on the NWS and AFS maintained websites. Weekend briefings will be provided upon request, depending on the weather and severity of the fire season. Briefing content is listed in Appendix G.

Afternoon or early evening briefings will be conducted when significant weather changes warrant, or during severe fire conditions, as requested by user agencies.

7. Pre-Season and Post-Seasonal Assessments.

Pre-season assessment for 2003 will be prepared in the spring.

Post-season assessment will be prepared for the Interagency Fall Fire Review Meeting.

8. Historical Climate and Weather Analysis.

9. Risk Assessments for fire behavior and fire danger potential.

10. Liaison between the federal and state agencies and the NWS.

11. Team member for collaborative planning efforts.

12. Team leader for RAWs coordination.

E. Alaska Fire Service (AFS), U.S. Forest Service (USFS), Division of Forestry (DOF), and the Alaska Wildland Fire Coordinating Group (AWFCG)

1. In concurrence with the National Agreement, the agencies will provide:
 - a. Fire management computer systems. Access shall be provided via FTP for transferring forecasts.
 - b. Fire weather observations. Observations from all RAWs are posted on the AFS website.
 - c. Provide pertinent weather information in support of spot forecast requests.
 - d. On-site meteorological support. A request for an Incident Meteorologist (IMET) for on-site support will be initiated by the Incident using an overhead resource order and following established dispatch procedures. Logistical support for all NWS personnel assigned to wildland fires will be supplied by the Incident to which he/she is assigned.
 - e. Training. NWS is welcome to nominate personnel to attend fire training sessions offered in Alaska. Acceptance is based on completion of prerequisite training requirements and space availability.
 - f. Other special services. A multi-port teleconference line will be available for briefings and conferences.
 - g. The AFS (<http://fire.ak.blm.gov>) And DOF (<http://www.dnr.state.ak.us/forestry>) also will maintain websites with links to NWS fire weather information.
 - h. The AFS will retrieve ASOS/AWOS observations and post them in the Weather section of the AFS website.
 - i. The AFS will provide real-time lightning data to the NWS.

2. In addition, the agencies have agreed to support the Fire Weather Program in the following manner:
 - a. When conditions warrant, file a resource order to request IMETs to augment the staffing at any of the Alaska WFOs, the AICC, or for on-site fire assignments.
 - b. Archive Weather Data. The AFS and AICC Intelligence will ensure pertinent observations from their stations of interest are archived into WIMS.

F. Administration

1. Operating Period.

The principal operating period for the Alaska Fire Weather Program will be from *April 7 through August 29, 2003*. During other times, the National Weather Service will provide Fire Weather Forecast product(s), as requested by the agencies, based on the severity of fire conditions.

2. Annual Meetings.

During the Fall 2003, NWS will coordinate a joint meeting of fire weather stakeholder agencies in Alaska (including the State of Alaska, Bureau of Land Management, National Park Service, U.S. Forest Service and the NWS) for the purpose of reviewing 2003 fire weather operations and preparing for the 2004 fire weather season. If requested by one of the agencies, additional meetings may be arranged.

3. Annual Operating Plan.

This document fulfills the "National Agreement for Meteorological Services in Support of Agencies with Land Management and Fire Protection Responsibilities," which establishes requirements for an Annual Operating Plan.

4. Modification of Fire Weather Operating Procedures.

Terms of this Operating Plan may be modified at any time. Agencies participating in this Operating Plan will provide reasonable advance notification of any operationally significant changes to other Alaska state fire weather stakeholder agencies, as listed in Section F.2 above.

5. Effective Date.

This Operating Plan is effective beginning April 1, 2003 and will be reviewed annually.

Date	James Partain Chief of Environmental and Scientific Services NWS Alaska Region
Date	Scott Billing Chair, Alaska Wildland Fire Coordinating Group

Appendix A

Alaska Wildland Fire Coordination Group
Fire Weather Committee
2003

State of Alaska - Division of Forestry

Arlene Weber-Sword Phone: 269-8471
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email: arlenes@dnr.state.ak.us

Bureau of Land Management - Alaska Fire Service

Dave Curry Phone: 356-5677
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U.S. Forest Service

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National Weather Service

Bill Alexander Phone: 271-5132
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Appendix B

Contact Points 2001

Agency Contacts for Fire Related Questions:

State of Alaska:

Anchorage/Palmer Area

Maria Wade

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Fax: 761-6227

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Fairbanks Area

Ray Kraemer

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Bureau of Land Management:

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National Park Service

AICC Meteorologist

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U.S. Forest Service:

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Chugach National Forest

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National Weather Service Fire Weather Contacts:

NWS Regional Fire Weather Coordinator

Bill Alexander

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Fairbanks Weather Forecast Office

Focal Point

Mike Richmond

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email: michael.richmond@noaa.gov

Lead Forecaster

Phone: 458-3700

March 2003

Meteorologist-in- Charge John Dragomir
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Incident Meteorologist Ted Fathauer
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Anchorage Weather Forecast Office

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Lead Forecaster Phone: 266-5107
Meteorologist-in-Charge Bob Hopkins
Phone: 266-5120
email: bob.hopkins@noaa.gov
Incident Meteorologist (trainee) Charles Bell
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Juneau Weather Forecast Office

Focal Point Michael J. Mitchell
Phone: 790-6824
Fax: 790-6827
email: michael.j.mitchell@noaa.gov
Back-up/IMET Chris Maier (WCM)
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email: chris.maier@noaa.gov
Lead Forecaster Phone: 790-6824
Meteorologist-in-Charge Tom Ainsworth
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email: tom.ainsworth@noaa.gov
Incident Meteorologist (trainee) Julia Ruthford
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Fire Weather Indices and WIMS:

AICC Meteorologist
Sharon Alden Phone: 356-5691
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Appendix C

PRODUCT AND SERVICE TIME LINE

April 1 through April 14

Fairbanks WFO: Spin-up operations and training for daily forecast issuance. During this period, forecasts, watches and warnings will be issued if weather and fuel conditions warrant, as requested by land management agencies.

Anchorage WFO: During this period, forecasts, watches and warnings will be issued if weather and fuel conditions warrant, as requested by land management agencies.

NWS Alaska Region: Ensures NWS Alaska Region Fire Weather Internet Home Page is operating and providing current products.

April 15 through August 25

NWS: Tele-conference briefings, as needed, for Anchorage WFO area of responsibility; i.e., event-driven and linked to Planning Levels III and above. Provide graphic products and data handling on a seven day-per-week basis.

Anchorage WFO: Daily written forecasts (morning and afternoon). Begin Monday-Wednesday-Friday teleconference briefings.

Fairbanks WFO: Daily written forecasts (morning and afternoon) for zones 221-226

AICC: Monday through Friday written statewide weather summary

May 1

Juneau WFO: Begin daily written fire weather forecasts.

AICC: Begins Monday through Friday statewide stand-up/teleconference briefing at the Alaska Interagency Coordination Center. Weekend briefings will be provided as needed.

May 1 through August 29

Fairbanks WFO: Daily written forecasts (morning and afternoon). Add forecasts for zones 212, 214-216, 219 and 220.

May 12

Fairbanks WFO: Daily written forecasts (morning and afternoon) begin for zones 208-210, 217 and 218.

August 29

End of Principal Operating Period

August 30 - March 31

Services of NWS and AICC meteorologist provided upon request. During this period, forecasts, watches and warnings shall be issued if weather and fuel conditions warrant, as requested by land management agencies.

Appendix D

PRODUCT AND SERVICE DAILY SCHEDULE

<u>LOCAL TIME</u>	<u>ITEM</u>
0500	NWS publishes Public Forecast on the Internet.
0845	Morning Fire Weather Forecasts for all Zones published to Internet.
0845	Forecasted Fire Weather Indices available on the AFS website.
0945	Internet briefing available on Alaska Fire Service web page
1020	Monday, Wednesday and Friday initial attack briefing at smoke jumpers by NWS Fairbanks.
1030	Anchorage tele-conference briefing on Monday, Wednesday, and Friday starting April 15. On May 1 begin Statewide Stand-up AICC Meteorologist Briefing in Fairbanks.
1045	Tactical statewide tele-conference briefing in Fairbanks
1130	Initial attack briefing at Fairbanks Area State Forestry Tuesday and Thursday. Weekend briefings will be provided, if requested.
1400 - 1700	Actual Fire Weather Indices are posted on the AFS Website. Indices are automatically calculated and posted when the 1400 hr. observation for each station is received by the AFS server.
1430	State manual weather stations transmit their weather observations into Anchorage and Fairbanks Forecast Centers via facsimile to AICC.
1600	Afternoon Public Forecast for all Zones published to the Internet.
1700	Fire Weather Forecast for all Zones published to the Internet.
Anytime	Spot forecast and prescribed burn forecast and smoke trajectory as needed. Contact as early as possible.

Appendix E

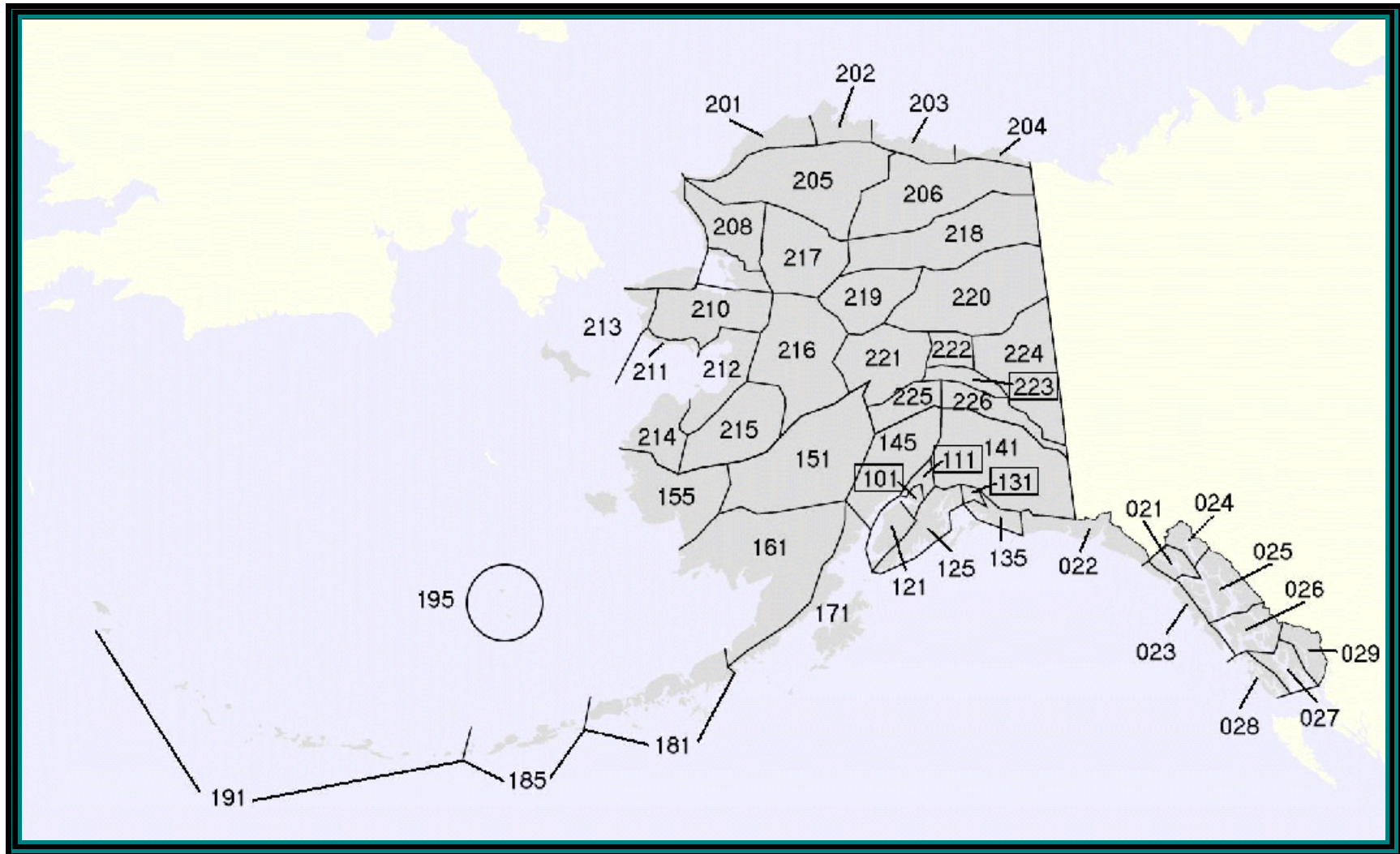
Fire Weather Zone Titles and WFO Responsibility

Fire Weather Zone Number	Zone Name	Responsible WFO
21	Glacier Bay - including Gustavus	Juneau
22	Cape Fairweather to Cape Suckling - Coastal Area - Including Yakutat	Juneau
23	Cape Decision to Cape Fairweather - Coastal Area - Including Pelican - Sitka - Port Alexander	Juneau
24	Northern Lynn Canal - Including Skagway - Haines	Juneau
25	Juneau Borough - Eastern Chichagof - Admiralty Island - Including Juneau - Hoonah - Angoon	Juneau
26	Inner Channel from Kupreanof Island to Etolin Island - Including Petersburg -Wrangell - Kake	Juneau
27	Southern Inner Channels - Including Ketchikan - Metlakatla	Juneau
28	Dixon Entrance to Cape Decision - Coastal Area - Including Craig - Klawock	Juneau
29	Misty Fjords - Including Hyder	Juneau
101	Anchorage Municipality to Bird Creek Including Glenn Highway North to the First Knik River Bridge - Seward Highway South to Bird Point	Anchorage
111	Matanuska Valley Including Palmer - Wasilla - Glenn Highway First Knik River Bridge to Chickaloon - Parks Highway North to Houston	Anchorage
121	Kenai Peninsula Including Kenai - Soldotna - Homer - Sterling Highway	Anchorage
125	Western Prince William Sound and Kenai Mountains Including Whittier - Girdwood - Seward - Seward Highway Bird Point to Seward	Anchorage
131	Northeast Prince William Sound Including Valdez - Richardson Highway North through Thompson Pass	Anchorage
135	Southeastern Prince William Sound Including Cordova	Anchorage
141	Copper River Basin Including Glennallen - Glenn Highway Chickaloon to Glennallen - Tok Cutoff Gakona Junction to Mentasta Pass - Richardson Highway Thompson Pass to the North End of Summit Lake	Anchorage
145	Susitna Valley Including Talkeetna - Willow - Parks Highway Houston to Denali Park Entrance	Anchorage
151	Kuskokwim Valley Including McGrath	Anchorage

March 2003

Fire Weather Zone Number	Zone Name	Responsible WFO
155	Kuskokwim Delta Including Bethel	Anchorage
161	Bristol Bay Including King Salmon - Naknek - Dillingham	Anchorage
171	Kodiak Island Including Kodiak City	Anchorage
181	Alaska Peninsula Including Cold Bay - Sand Point	Anchorage
185	Eastern Aleutians Including Unalaska	Anchorage
191	Western Aleutians Including Adak	Anchorage
195	Pribilof Islands Including St. Paul	Anchorage
201	Western Arctic Coast Including Wainwright - Atkasuk - Point Lay	Fairbanks
202	Northern Arctic Coast Including Barrow	Fairbanks
203	Central Beaufort Sea Coast Including Prudhoe Bay - Deadhorse - Nuiqsut - Kuparuk - Dalton Highway Milepost 378 to 414	Fairbanks
204	Eastern Beaufort Sea Coast Including Kaktovik	Fairbanks
205	Northern Slopes of the Brooks Range from the Colville River Westward Including Umiat	Fairbanks
206	Northern Slopes of the Brooks Range East of the Colville River Including Anaktuvuk Pass - Dalton Highway Milepost 245 to 378	Fairbanks
207	Chukchi Sea Coast Including Point Hope - Kivalina - Shishmaref - Red Dog Port	Fairbanks
208	Lower Kobuk and Noatak Valleys Including Noatak - Kiana - Red Dog Mine	Fairbanks
209	Baldwin Peninsula and Selawik Valley Including Kotzebue - Selawik - Noorvik	Fairbanks
210	Northern and Interior Seward Peninsula Including Buckland - Deering - Candle - Council - Pilgram Hot Springs - Taylor	Fairbanks
211	Southern Seward Peninsula Coast Including Nome - White Mountain - Golovin	Fairbanks
212	Eastern Norton Sound - Nulato Hills Including Unalakleet - Stebbins - St. Michael - Elim - Koyuk - Shaktoolik	Fairbanks
213	St. Lawrence Island - Bering Strait Coast Including Gambell - Savoonga - Brevig Mission - Teller - Little Diomed - Wales	Fairbanks
214	Yukon Delta Including Emmonak - Mountain Village - Alakanuk - Pilot Station - Kotlik - St. Marys - Scammon Bay - Sheldon Point - Pitkas Point	Fairbanks

Fire Weather Zone Number	Zone Name	Responsible WFO
215	Lower Yukon Valley Including Marshall - Russian Mission - Holy Cross - Grayling - Shageluk - Anvik - Flat	Fairbanks
216	Lower Koyukuk and Middle Yukon Valleys Including Galena - Nulato - Kaltag - Huslia - Ruby - Koyukuk	Fairbanks
217	Upper Kobuk and Noatak Valleys Including Ambler - Shungnak - Kobuk	Fairbanks
218	Southern Slopes of the Eastern Brooks Range Including Arctic Village - Wiseman - Coldfoot - Dalton Highway Milepost 160 to 245	Fairbanks
219	Upper Koyukuk Valley Including Allakaket - Hughes - Bettles - Dalton Highway Milepost 90 to 160	Fairbanks
220	Yukon Flats and Surrounding Uplands Including Fort Yukon - Venetie - Beaver - Stevens Village - Chalkitsyk - Birch Creek - Steese Highway Northeast of Sourdough to Circle City - Dalton Highway from Near Livengood to Milepost 90	Fairbanks
221	Western Tanana Valley and Yukon Valley Rampart to Lower Nowitna River Including Anderson - Nenana - Tanana - Rampart - Lake Minchumina - Livengood - Elliott Highway Livengood to Manley Hot Springs - Parks Highway Nenana to Anderson	Fairbanks
222	Middle Tanana Valley Including Fairbanks - Fort Wainwright - Eielson AFB - North Pole - Two Rivers - Ester - Chena Hot Springs Road - Parks Highway Fairbanks to Near Nenana - Richardson Highway Fairbanks to Near Salcha - Steese Highway Fairbanks to Sourdough - Elliott Highway Fairbanks to Near Livengood	Fairbanks
223	Tanana River Flats Including Delta Junction - Fort Greeley - Salcha - Dry Creek - Dot Lake - Healy Lake - Harding Lake - Alaska Highway Delta Junction to Dot Lake - Richardson Highway Salcha to Donnelly Dome	Fairbanks
224	Upper Tanana Valley and the Fortymile Country Including Tok - Northway - Eagle - Tanacross - Tetlin - Chicken - Alcan - Taylor Highway - Alaska Highway Dot Lake to Canada	Fairbanks
225	Denali Including Healy - Denali National Park - Kantishna - Parks Highway south of Anderson to Denali Park Entrance	Fairbanks
226	Northeastern Slopes of the Eastern Alaska Range Including Mentasta Lake - Trims D.O.T. - Fielding Lake - Black Rapids - Nabesna - Richardson Highway Donnelly Dome to the North End of Summit Lake - Tok Cutoff from South of Tok to Mentasta Lake	Fairbanks



Alaska Fire Weather Zones/Public Zones

March 2003

Appendix F

Amendment Criteria

Red Flag Warning Fire Weather Watches Fire Weather Forecasts

Update when:

- A. Forecasted wind direction differs from observed wind direction by 90 degrees or greater when the observed sustained wind speed is greater than 10 mph.
- B. Observed sustained wind speed differs from forecasted wind speed by 10 mph or more.
- C. The observed relative humidity (RH_{observed}) is less than 50% and the forecast relative humidity (RH_{forecast}) minus the observed relative humidity is greater than 10%,

$$RH_{\text{observed}} < 50\% \quad \text{and} \quad RH_{\text{forecast}} - RH_{\text{observed}} > 10\%$$

- D. No thunderstorms are forecast and thunderstorms develop.
- E. A Red Flag Warning or Fire Weather Watch is issued or cancelled.

Appendix G

BRIEFING CONTENT

Briefings shall provide general statewide fire weather information for all cooperating agencies. Anchorage and Fairbanks NWS fire weather focal points shall coordinate with the AICC Meteorologist for briefing information.

Discussion items shall include:

- Previous Day's Red Flag Warnings/Fire Weather Watches

 - Maximum Temperature

 - Minimum Relative Humidity

 - Precipitation

 - Significant weather events

- Today's, tomorrow's and a longer range (3 to 10 day) forecast with an emphasis on wet or dry thunderstorm potential and discussion on temperature, humidity, winds and precipitation.

The graphics display shall consist of the following charts:

- previous 24 hour maximum temperature

- previous 24 hour minimum relative humidity

- previous 24 hour precipitation

- 500 mb

- link to most recent satellite imagery

- 4:00 a.m. analysis of the surface

- Today's forecasted maximum temperature

- Today's forecasted minimum RH

- Today's Winds

- Today's thunderstorm potential

- 500 mb forecast charts for days 2, 3-6, 7-10.

Appendix H

Example: Routine Daily Fire Weather Forecast for One Fire Weather Zone

FNAK51 PAFC 102306
FWFAFC

ALASKA FIRE WEATHER ZONE FORECASTS
NATIONAL WEATHER SERVICE ANCHORAGE ALASKA
206 PM AST MON MAR 10 2003

.DISCUSSION...

AKZ101-111500-
ANCHORAGE MUNICIPALITY-
INCLUDING THE CITIES OF...ANCHORAGE...EAGLE RIVER
206 PM AST MON MAR 10 2003

.TONIGHT...

SKY/WEATHER.....MOSTLY CLOUDY UNTIL 2200 (80-90%)...THEN
CLEAR (0-5%).
MIN TEMPERATURE.....8.
24 HR TREND.....2 DEGREES WARMER.
MAX HUMIDITY.....52-53%.
24 HR TREND.....UNCHANGED.
20-FOOT WINDS.....LIGHT WINDS.

.TUESDAY...

SKY/WEATHER.....SUNNY (0-5%).
MAX TEMPERATURE.....4.
24 HR TREND.....13 DEGREES COOLER.
MIN HUMIDITY.....45-46%.
24 HR TREND.....2 PERCENT WETTER.
20-FOOT WINDS.....NORTH WINDS 15 MPH.

.TUESDAY NIGHT...

SKY/WEATHER.....CLEAR (0-5%).
MIN TEMPERATURE.....-18.
24 HR TREND.....26 DEGREES COOLER.
MAX HUMIDITY.....51-52%.
24 HR TREND.....1 PERCENT DRIER.
20-FOOT WINDS.....BREEZY. NORTH WINDS 25 MPH.

.WEDNESDAY...

SKY/WEATHER.....PARTLY CLOUDY UNTIL 1700 (60-70%)...THEN

CLOUDY (90-100%).
MAX TEMPERATURE.....16-17.
24 HR TREND.....12 DEGREES WARMER.
MIN HUMIDITY.....47-48%.
24 HR TREND.....2 PERCENT WETTER.
20-FOOT WINDS.....WINDY. NORTH WINDS 35 MPH.

.EXTENDED...

.THURSDAY...WINDY AND CLOUDY. LOWS 3 BELOW ZERO. HIGHS 11 TO 11.
NORTH WINDS 35 MPH.

.FRIDAY...BREEZY. MOSTLY CLOUDY. CHANCE OF SNOW. LOWS 9. HIGHS IN
THE MID 20S. EAST WINDS 25 MPH.

.SATURDAY...WARMER. MOSTLY CLOUDY. CHANCE OF SNOW. LOWS IN THE
TEENS. HIGHS IN THE LOWER 30S. EAST WINDS 15 MPH.

.SUNDAY...MOSTLY CLOUDY. CHANCE OF SNOW. LOWS IN THE LOWER 20S.
HIGHS IN THE UPPER 20S.

.MONDAY...CHANCE OF SNOW. LOWS IN THE LOWER 20S. HIGHS IN THE UPPER
20S.

Appendix I: Product Examples

Example: Red Flag Warning and Fire Weather Watch Forecast

Red Flag Warning:

WWAK61 PAFC 132357
RFAFAC
RED FLAG WARNING...SOUTH CENTRAL ZONE
NATIONAL WEATHER SERVICE ANCHORAGE AK
300 PM AST THU MAR 13 2003

AKZ101-111-121-145-141800-

...RED FLAG WARNING IN EFFECT TONIGHT FOR ANCHORAGE BOWL...
MATANUSKA VALLEY AND KENAI PENINSULA...

THE FIRE WEATHER ZONES IN THIS WARNING INCLUDE:
ZONE 101 - ANCHORAGE
ZONE 111 - PALMER AND BIG LAKE
ZONE 121 - KENAI PENINSULA
ZONE 145 - TALKEETNA

DISCUSSION: WINDS WILL CONTINUE TONIGHT FROM THE NORTH AND
NORTHEAST 35 TO 50 MPH GUSTING FROM 45 MPH IN THE ANCHORAGE BOWL...
KENAI PENINSULA...AND SUSITNA VALLEY AND GUSTING TO 75 MPH IN THE
MATANUSKA VALLEY. STRONG NORTH WINDS WILL CONTINUE ON FRIDAY.
RELATIVE HUMIDITIES WILL ONLY RECOVER TO 30 TO 40 PERCENT OVERNIGHT.
CONDITIONS ARE EXPECTED TO IMPROVE BY SATURDAY ACROSS THE REGION.

A RED FLAG WARNING MEANS THAT CONDITIONS ARE OCCURRING OR WILL
OCCUR WHICH COULD LEAD TO THE DEVELOPMENT OF LARGE AND DANGEROUS
FIRES. IT IS DIRECTED TOWARD FIRE AGENCIES...AND THROUGH THEM...TO THE
PUBLIC.

THE NEXT STATEMENT WILL BE ISSUED AS NECESSARY.

\$\$

VJP MAR 03

Fire Weather Watch:

WWAK62 PAFC 141857
RFAFC
FIRE WEATHER WATCH
NATIONAL WEATHER SERVICE ANCHORAGE AK
10 AM AST FRI MAR 14 2003

AKZ141-141930-

...FIRE WEATHER WATCH TODAY FOR THE COPPER RIVER BASIN...

INCLUDING GLENNALLEN - GLENN HIGHWAY CHICKALOON TO GLENNALLEN -
TOK CUTOFF GAKONA JUNCTION TO MENTASTA PASS - RICHARDSON HIGHWAY
THOMPSON PASS TO THE NORTH END OF SUMMIT LAKE

DISCUSSION: STRONG HIGH PRESSURE WILL BUILD INTO THE REGION FROM THE
YUKON TERRITORIES ON SATURDAY AND WILL PERSIST THROUGH MONDAY.
THIS WILL INCREASE THE PRESSURE GRADIENT OVER THE COPPER RIVER BASIN.
STRONG NORTH WINDS GUSTING TO 70 MPH WILL DEVELOP ON SATURDAY.
RELATIVE HUMIDITIES ARE EXPECTED TO FALL BELOW 20 PERCENT AT TIMES.

A FIRE WEATHER WATCH MEANS THAT WEATHER CONDITIONS COULD LEAD
TO THE POTENTIAL FOR A RED FLAG EVENT IN THE NEAR FUTURE. THIS
WATCH WILL REMAIN IN EFFECT UNTIL IT IS UPGRADED TO A RED FLAG
WARNING OR THAT IT IS DETERMINED THAT THE RED FLAG EVENT WILL NOT
DEVELOP.

THE NEXT STATEMENT WILL BE ISSUED AS NECESSARY.

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PROTON MAR 03

Spot Forecast/Prescribed Burn Forecast/Smoke Management

Spot Forecast for Helen 301016 Fire.....Alaska DNR DOF
National Weather Service Anchorage, Alaska
1218 PM AST Thu Mar 13 2003

VALID UNTIL 1218 AM AST FRI MAR 14 2003

IF CONDITIONS BECOME UNREPRESENTATIVE, CONTACT THE NATIONAL
WEATHER SERVICE.

DISCUSSION...STRONG OFFSHORE FLOW WILL CONTINUE ACROSS THE AREA
THROUGH SATURDAY. STRONG NORTHEAST WINDS AND VERY DRY CONDITIONS
WILL CONTINUE THROUGH THIS WEEKEND OVER THE BURN AREA. FREQUENT
NORTHEAST GUSTS TO 75 MPH ARE POSSIBLE THROUGH MIDNIGHT.

FOR TODAY

SKY / WEATHER.....CLEAR. AREAS OF BLOWING DUST.
TEMPERATURE.....NOON -1...MAX 7
RH.....NOON 35%...MIN 22%
20 FOOT WIND.....NORTHEAST 40 MPH GUSTING AT TIMES TO 75 MPH.
CWR.....ZERO.

FOR TONIGHT

SKY / WEATHER.....CLEAR. AREAS OF BLOWING DUST.
TEMPERATURE.....MIN -4
RH.....MAX 45%
20 FOOT WIND.....NORTHEAST 30 MPH GUSTING AT TIMES TO 65 MPH.
CWR.....ZERO.

OUTLOOK FOR TOMORROW

SKY / WEATHER.....CLEAR. AREAS OF BLOWING DUST.
TEMPERATURE.....MAX 18.
RH.....MIN 28%
20 FOOT WIND.....NORTHEAST 25 MPH GUSTING AT TIMES TO 55 MPH.
CWR.....ZERO

FORECASTER...PROTON MAR 03

Appendix J: Weather Data Collection Sites in Alaska

WX Zones	AGENCY	ALPHA	LOCATION	AREA	EQUIP
	24 NWS	PASI	SITKA	TNF	MANUAL
	25 USFS	HON	HOONAH	TNF	RAWS
	25 NWS	PAJN	JUNEAU	TNF	MANUAL
	25 USFS	JNU	JUNEAU RD	TNF	RAWS
	26 USFS	KAK	KAKE	TNF	RAWS
	26 USFS	WPK	WOODPECKER	TNF	RAWS
	26 USFS	ZMB	ZAREMBO	TNF	RAWS
	27 NWS	PAKT	KETCHIKAN	TNF	MANUAL
	27 USFS	SHL	SHELTER COVE	TNF	RAWS
	27 USFS	TRN	THORNE RIVER	TNF	RAWS
	28 USFS	HAD	HAIDA	TNF	RAWS
	28 USFS	POL	POLK PEAK	TNF	RAWS
	101 NWS	PANC	ANCHORAGE	MSS	MANUAL
	101 STA	RBT	RABBIT CREEK	MSS	RAWS
	111 STA	BGQ	BIG LAKE	RAWS	MSS
	111 NWS	PAAQ	PALMER	MSS	MANUAL
	121 USFS	BDV	BROADVIEW	CGF	RAWS
	121 NWS	PAHO	HOMER	KKS	MANUAL
			HOMER EAST		
	121 STA	HO2	END	KKS	MANUAL
	121 NWS	PAEN	KENAI	KKS	MANUAL
	121 FWS	KNA	KENAI NWR	KKS	RAWS
	121 FWS	NCK	NINILCHIK	KKS	RAWS
			SKILAK GRD		
	121 STA	SGS	STATION	KKS	RAWS
	121 STA	SXQ	SOLDOTNA	KKS	MANUAL
			SWANSON		
	121 FWS	SWN	RIVER	KKS	RAWS
	125 USFS	GRA	GRANITE	CGF	RAWS
	125 USFS	KNL	KENAI LAKE	CGF	RAWS
	141 NPS	CSN	CHISANA	CRS	RAWS
	141 STA	CZO	CHISTOCHINA	CRS	MANUAL
	141 STA	CXC	CHITNA	CRS	RAWS
	141 NWS	PAGK	GULKANA	CRS	MANUAL
	141 STA	KNY	KENNY LAKE	CRS	MANUAL
	141 NPS	KLA	KLAWASI	CRS	RAWS
	141 NPS	MAC	MAY CREEK	CRS	RAWS
	141 STA	TZL	MENDELTONA	CRS	MANUAL
	141 STA	PAXK	PAXSON	CRS	RAWS
	141 STA	5SZ	SLANA	CRS	MANUAL
			TAZLINA		
	141 STA	TZV	VILLAGE	CRS	MANUAL
			BENTALIT		
	145 STA	BLS	LODGE	MSS	RAWS

145 NWS	PATK	TALKEETNA	MSS	MANUAL
151 NWS	PANI	ANIAK	SWS	MANUAL
151 BLM	FWL	FAREWELL	SWS	RAWS
151 STA	FLT	FLAT	SWS	RAWS
151 NWS	PAMC	MCGRATH	SWS	MANUAL
151 NPS	SNY	STONEY	SWS	RAWS
151 STA	SRV	STONEY RIVER	SWS	RAWS
151 STA	TEL	TELIDA	SWS	RAWS
155 NWS	PABE	BETHEL	SWS	MANUAL
161 NWS	PADL	DILLINGHAM	SWS	MANUAL
161 NWS	PAIL	ILIAMNA	SWS	MANUAL
161 FWS	KIL	KILBUCK	SWS	RAWS
		PORT		
161 NPS	ALS	ALSWORTH	SWS	RAWS
171 FWS	BTL	BOOTH LAKE	KKS	RAWS
171 NWS	PADQ	KODIAK	KKS	MANUAL
181 NWS	PACD	COLD BAY	KKS	MANUAL
202 NWS	PABR	BARROW	GAD	MANUAL
208 NPS	KEL	KELLY	GAD	RAWS
208 BLM	IAN	KIANA	GAD	RAWS
209 NWS	PAOT	KOTZEBUE	GAD	MANUAL
209 FWS	SWK	SELAWIK	GAD	RAWS
210 BLM	HAY	HAYCOCK	GAD	RAWS
210 NPS	HDO	HOODOO HILL	GAD	RAWS
210 BLM	QRZ	QUARTZ CREEK	GAD	RAWS
211 NWS	PAOM	NOME	GAD	MANUAL
212 NWS	PAUN	UNALAKLEET	GAD	MANUAL
		REINDEER		
214 FWS	RDR	RIVER	SWS	RAWS
215 BLM	INK	INNOKO FLATS	GAD	RAWS
216 FWS	COT	COTTONWOOD	GAD	RAWS
216 NWS	PAGA	GALENA	GAD	MANUAL
		HOGATZA		
216 BLM	HOG	RIVER	GAD	RAWS
216 FWS	KAI	KAIYUH	GAD	RAWS
216 FWS	KOY	KOYUKUK NWR	CRS	RAWS
216 BLM	POR	POORMAN	TAD	RAWS
217 NWS	PAFM	AMBLER	GAD	MANUAL
217 NPS	KAV	KAVET CREEK	GAD	RAWS
217 NPS	NOA	MAKPIK	GAD	RAWS
218 FWS	AWR	HELMET MT.	UYD	RAWS
219 NWS	PABT	BETTLES	TAD	MANUAL
219 FWS	KAN	KANUTI NWR	GAD	RAWS
219 NPS	NRU	NORUTAK LAKE	TAD	RAWS
220 FWS	BAR	BEAR MTN.	UYD	RAWS
220 FWS	WBQ	BEAVER (WBQ)	UYD	RAWS
220 BLM	BIR	BIRCH CREEK	UYD	RAWS
220 FWS	CIK	CHALKYITSIK	UYD	RAWS
220 NWS	PFYU	FORT YUKON	UYD	MANUAL

		GRAPHITE		
220 FWS	GRF	LAKE	UYD	RAWS
220 FWS	HOZ	HODZANA	UYD	RAWS
220 FWS	BVR	NEW LAKE	UYD	RAWS
		PREACHER		
220 FWS	PCK	CREEK	UYD	RAWS
		SALMON		
220 BLM	SMT	TROUT	UYD	RAWS
220 BLM	7MI	SEVEN MILE	TAD	RAWS
220 FWS	VZK	VUNZIK LAKE	UYD	RAWS
221 STA	CHT	CHATANIKA	FAS	RAWS
		LAKE		
221 NPS	MHM	MINCHUMINA	TAD	RAWS
221 BLM	LIV	LIVENGOOD	TAD	RAWS
		MCKINLEY		
221 NPS	MCK	RIVER	TAD	RAWS
		NENANA		
221 NWS	PANN	AIRPORT	FAS	MANUAL
221 FWS	RND	ROUND LAKE	TAD	RAWS
221 NWS	PATA	TANANA	TAD	MANUAL
221 BLM	WNL	WIEN LAKE	TAD	RAWS
		ANGEL CRK		
222 STA	AGL	LODGE	FAS	RAWS
222 BLM	CPK	CARIBOU PEAK	FAS	RAWS
222 NWS	PAEI	EIELSON	FAS	MANUAL
		FAIRBANKS		
222 NWS	PAFA	AIRPORT	FAS	MANUAL
		FAIRBANKS		
222 BLM	FBK	RAWS	FAS	RAWS
222 STA	NEN	NENANA RAWS	FAS	RAWS
222 STA	SLR	SALCHA	FAS	RAWS
223 NWS	PABI	FORT GREELY	DAS	MANUAL
		GEORGE CRK		
223 STA	GEC	RAWS	DAS	RAWS
		ALCAN HIWAY		
224 FWS	TWR	MI.1244	TAS	RAWS
		BEN CREEK		
224 NPS	BEN	Airstrip	UYD	RAWS
224 BLM	CKN	CHICKEN	UYD	RAWS
224 NPS	EAG	EAGLE	UYD	RAWS
224 STA	GDP	GOODPASTER	DAS	RAWS
		JATAHMOND		
224 FWS	TET	LAKE	TAS	RAWS
224 NWS	PAOR	NORTHWAY	TAS	MANUAL
224 STA	TEE	T-LAKE	TAS	RAWS
224 STA	TOK	TOK	TAS	MANUAL
225 NWS	PAHV	HEALY	FAS	MANUAL
225 NPS	WON	WONDER LAKE	TAD	RAWS
226 STA	DRY	DRY CREEK	TAS	MANUAL
		TOK RIVER		
226 STA	TKR	VALLEY	TAS	RAWS

Appendix K:

BIA AGREEMENT #:
BLM AGREEMENT #:
FWS AGREEMENT #:
FS AGREEMENT #:
NPS AGREEMENT #:
NWS AGREEMENT #:

Interagency Agreement for Meteorological Services

Between the
Bureau of Land Management
Bureau of Indian Affairs
U.S. Fish and Wildlife Service
National Park Service
of the
United States Department of the Interior
and the
Forest Service
of the
United States Department of Agriculture
and the
National Association of State Foresters
and the
National Weather Service
of the
United States Department of Commerce

Introduction

This Interagency Fire Weather Agreement is between the following Federal and state agencies:

- A. Department of Agriculture, Forest Service (USFS)
- B. Department of Commerce, National Oceanographic and Atmospheric Administration, National Weather Service (NWS),
- C. Department of Interior, Bureau of Land Management (BLM), Bureau of Indian Affairs (BIA), Fish and Wildlife Service (FWS), and National Park Service (NPS)
- D. National Association of State Foresters, representing the states.

This agreement will refer to the National Weather Service as “NWS” and the Federal and state wildland fire agencies as the “Interagency Wildland Fire Agencies”.

Interagency Wildland Fire Agencies are responsible for the stewardship and/or protection of lands owned or held in trust by the United States or under the jurisdiction of state agencies. The purpose of this agreement is to combine resources and provide complementary services without duplication to best serve the needs of the public and all agencies for the protection of life, property and resource values to enhance ecosystem health. Accurate and timely meteorological and fire danger information is required to manage these resources effectively and efficiently.

National Weather Service is legally mandated to issue weather forecasts and warnings for the protection of life and property.

The NWS and Interagency Wildland Fire Agency responsibilities are defined in Section 4. The NWS Weather Forecast Office (WFO) products and services shall be focused on respective County Warning Forecast Areas (CWFA) for the operational concerns of local wildland fire agency districts, while Interagency Wildland Fire Agencies shall focus on Geographic Area and national level products and services. The needs of Geographic Areas are met using Geographic Area Memorandums of Agreement and/or Geographic specific Annual Operating Plans (See appendix 1 for a suggested outline) and this Interagency Agreement. The NWS and Interagency Wildland Fire Agencies will coordinate and cooperate on developing fire weather policy, standards and guidelines. It is with this knowledge that this Agreement is entered into.

Authority

Reciprocal Fire Protection Act of May 17, 1955 (69 Stat. 66; 42 U.S.C. 1856A, as amended.)
Economy Act, 31 U.S.C. 686; 15 U.S.C. 313; and 49 U.S.C. 1463; 47 Stat. 417).
Cooperative Forestry Assistance Act of 1978 (16 U.S.C. 2101).
Organic Act of 1890 (150 U.S.C. 313).

Objective

The objectives of this Agreement are to identify meteorological services to be provided, establish interagency relationships, and define obligations of the National Weather Service and Interagency Wildland Fire Agencies.

Responsibilities

The responsibilities listed are not all-inclusive but is meant to provide the overall scope of services provided by the respective agencies.

- I. National Weather Service:

All obligations undertaken by the National Weather Service under this Agreement are subject to the availability of appropriated funds.
- A. Basic Meteorological Services: Basic Meteorological Services will be provided in accordance with Annual Operating Plans (AOP) for Fire Weather Service for designated National Weather Service offices. These services will be made available without cost to Interagency Wildland Fire Agencies and will include:
 - 1. Routine fire weather forecasts and updates during the designated period outlined in the Annual Operating Plan.
 - 2. Extended and long-range weather and climate outlooks.
 - 3. NWS weather observations.
 - 4. Fire Weather Watch and Red Flag Warning program.
 - 5. Site-specific forecasts for wildland fires or special federal projects (i.e. spraying, seeding, fuels management, or search and rescue operations.)
 - 6. Provide consultation and technical advice in support of basic services to Interagency Wildland Fire Agencies.
 - 7. Provide weather information to a central communication gateway and the Internet for Interagency Wildland Fire Agencies' use and further distribution.
 - 8. Provide a cadre of Incident Meteorologists (IMET) in support of the fire weather program.
 - 9. Maintain a current list of offices providing basic meteorological services.
 - 10. National scale short range fire weather outlooks.
- B. Non-Routine Services: These services will be provided by designated NWS offices.
 - 1. Expenses above planned salary and operating costs will be borne by the benefiting agency.
 - 2. Weather Observer training.
 - 3. Weather observation stations visits.
 - 4. Participation in Wildland Fire agency training.
 - a) Course development.
 - b) Classroom instruction.
 - 5. On-site meteorological services.
 - 6. Other special fire management services.
- C. Fire Weather Training: The NWS recognizes the need for specialized training in fire weather meteorology for forecasters. Costs associated with training NWS staff will be borne by NWS. The NWS will meet this need as follows:
 - 1. The NWS will ensure all meteorologists producing fire weather products have met the minimum fire weather forecaster training requirements.
 - 2. The NWS will provide specialized training for the purpose of qualifying NWS Incident Meteorologists (IMET).
- D. Participation in Interagency Groups: All NWS costs will be borne by NWS.

- II. Interagency Wildland Fire Agencies:
Wildland Fire Agency meteorologists provide Geographic Area and national products for the strategic role of resource prioritization and utilization. Specific responsibilities of Wildland Fire Agency meteorologists are listed below.
- A. Operational Support and Predictive Services
 - 1. Geographic Area and national level fire weather products, services and assessments will be provided for resource allocation and prioritization.
 - 2. Integration of weather and climatic sciences into GACC operations.
 - 3. Develop value-added products to enhance short & long-range outlooks and projections.
 - 4. Provide weather briefings to GACC and NIFC Coordinators, and Multi-agency Coordinating Groups.
 - 5. Manage weather and climatology portions of GACC web site.
 - 6. Manage agency fire weather infrastructure.
 - 7. Smoke management.
 - B. Program Management
Program management of federal land management and fire agencies' fire weather responsibilities, which includes:
 - 1. Program coordination with state agencies; and
 - 2. Programmatic guidance, evaluation & certification.
 - 3. Advice and staff support to Fire Directorate.
 - 4. Manage weather station network
 - 5. Liaison between field users and service providers.
 - 6. Participation in activity reviews.
 - C. Monitoring, Feedback and Improvement
 - 1. Transmit feedback to product and service providers
 - 2. Suggest improvements to providers of products and services received
 - 3. Advise agencies on quality control of weather observations
 - 4. Coordination with NWS and users in assessment and evaluation of program effectiveness
 - 5. Fire weather expertise in accident/incident investigations
 - D. Technology Transfer
 - 1. Transfer meteorology and climatology knowledge to field level personnel.
 - 2. Promote proper usage by agency personnel of weather and climate products and services.
 - 3. Conduct training/expertise needs assessment.
 - 4. Coordinate data and technology acquisition.
 - 5. Participation on training cadre.
 - E. Agency Computer Systems: Where fire management computer systems are locally available, access to the systems will be granted to NWS to provide services as needed. Costs will be borne by the Interagency Wildland Fire Agencies for requirements that are beyond the distribution of weather information through a central communications gateway.
 - F. Fire Weather Observations:
 - 1. Provide routine surface weather observations to NWS.

2. Provide all equipment, equipment maintenance, inspection of weather observation sites, and data quality control.
3. Pay all travel and per diem costs associated with Interagency Wildland Fire Agencies' requests for visits of NWS personnel to weather observing sites.
4. Provide for collection, storage and retrieval of remote automatic weather stations (RAWS) data.
5. Provide observations for site specific and other special forecasts.
- G. On-Site Meteorological Support:
 1. Pay costs directly associated with on-site meteorological support by NWS personnel. This includes costs incurred by the NWS IMET duty station.
 2. Provide logistical and weather observation support to NWS personnel at on-site operations
 3. Provide and pay costs associated with telecommunication services.
- H. Training:
 1. Pay per diem and travel costs for NWS personnel instructing and course development in Wildland Fire Agency training.
 2. Provide technical assistance, instruction, and supporting material for NWS sponsored fire weather training sessions.
 3. Other Non-Routine Services: Interagency Wildland Fire Agencies will provide logistics support and pay all overtime, travel, and per diem costs of NWS personnel associated with the provision of all other special fire meteorological services, including Wildland Fire agency approved wildland fire familiarization for NWS personnel.

III. Joint Responsibilities:

- NWS and Interagency Wildland Fire Agencies shall jointly prepare National and Geographic Area specific Memorandum of Agreement and/or Annual Operation Plan for Fire Weather Services which will set policy and procedures at Geographic Area, National Interagency Fire Center, state or forecast office level.
- A. Shared responsibilities of all participants shall include, but not be limited to, weather briefings, training, research, product/service verification as outlined in Geographic Area specific Annual Operation Plans
 - B. Monitoring, Feedback and Improvement
 - C. Document, monitor and evaluate fire weather products, briefings and services delivered
 - D. Monitor and evaluate advances in science and technology
 - E. Technology Transfer
 - F. Participation in fire weather research activities
 - G. On-site Incident Meteorologists services may be provided by Interagency Fire Weather Meteorologist meeting NWS standards only when NWS IMETs are not available to meet Wildland Fire Agency resource requests on a national basis. The coordination for Interagency Fire Weather Meteorologists will be done between the NWS IMET coordinator and National Interagency Coordination Center.
 - H. NWS meteorologists and Interagency Wildland Fire Agency meteorologists stationed at Geographic Coordination Centers (GACCs) and at the National Interagency Fire Center (NIFC) will work together to

ensure fire agency decision makers receive consistent and coordinated fire weather products and services.

- I. The NWS and Interagency Wildland Fire Agencies will jointly develop and share technology including meteorological software and data, Advance Technology Meteorological Units, portable weather stations, etc. to improve capabilities and performance.
- J. NWS and Wildland Fire Agency meteorologists shall work closely in all phases of the fire weather forecast and warning program to resolve concerns and avoid potential inconsistencies in products and services prior to delivery to fire agency customers. The goal of all Agencies is to maximize firefighter and public safety through a coordinated delivery of consistent services.
- K. If conflicts and/or disagreements cannot be resolved at the regional (GACC) level, the conflict will be elevated to the National Fire Weather Program Managers for the NWS and Interagency Wildland Fire Agencies. If the conflict cannot be resolved at the National Program Managers level, the conflict will be elevated to the Agency Director level (NWS and applicable Wildland Fire Agency Director) for final resolution.

IV. Statement of Work

Procedures for obtaining service will be specified in the AOP.

V. General Provisions

- A. Each agency shall make direct settlement from its own funds for all liabilities it incurs under this Agreement.
- B. Parties to this Agreement are not obligated to make expenditures of funds or provide services under terms of this Agreement unless such funds are appropriated or services are authorized by either the State Legislatures or the Congress of the United States, or are otherwise available under Section 101 and 102 of the Annual Appropriations Act for Interior and Related Agencies.
- C. The terms of this Agreement shall become effective upon execution by NWS and any or all Interagency Wildland Fire Agencies and shall remain in effect for a period of 5 years or until such time as the Agreement is terminated by mutual agreement. Any signatory may terminate their participation in this Agreement by written notice to all other signatories provided that such notice shall be given between the dates of October 1 of any year and February 1 of the following year. The remaining signatories may continue the provisions of this agreement as long as the NWS remains a signatory. This agreement will be reviewed annually by the points of contact listed in Section XI.
- D. Financial obligations under this Agreement, to accomplish activities under the Annual Operating Plan, must be assigned by the responsible officers at the appropriate level operating within their authority and be included in a specific task order.
- E. Each agency shall, upon request, forward specific cost information for billings. For the Federal agencies, billing and collection procedures will follow the On-Line Payment and Accounting System (OPAC) process.
- F. Federal agencies will not need an Economy Act Determination to execute reimbursable activities because the more specific authority

does exist in the Reciprocal Fire Protection Act as addressed in FAR 17.500 (b).

- G. Indirect administrative surcharges will not be assessed for activities addressed in respective Annual Operating Plan by any signatory for services performed by another signatory.
- H. This Agreement does not constitute a financial obligation for any party in excess of appropriations authorized by law and administratively allocated for the purposes intended.
- I. Amendments and modifications to this agreement may be initiated by any signatory agency. Amendments shall not take effect until documented and signed by all signatories.
- J. The signatory Interagency Wildland Fire Agencies agree to consider expansion of this Agreement to cover areas of mutual concern, e.g., changing technology and improved procedures, as opportunities for such cooperation become available.

VI. Task Orders

Task Orders may be prepared in any format acceptable to the agencies involved in each project. At a minimum each task order written in support of this agreement will include the following items:

- A. Detailed description of services to be done or supplies to be delivered;
- B. Description of the deliverables;
- C. Performance period for completion;
- D. Cost estimates;
- E. Identify responsible project officials for each Task Order agency;
- F. Payment procedures (applicable billing procedures, identification of codes, advance payments or reimbursement, etc.).
- G. Signature(s) by authorized personnel for each Task Order agency.

VII. Waiver

Each party to this agreement does hereby expressly waive all claims against the other party for compensation for any loss, damage, personal injury or death occurring in consequences of the performance of this agreement.

IX. Agreement Points of Contact

The Points of Contact are responsible for an annual review of the currency and adequacy of this Agreement.

- A. NWS:
National Fire Weather Program Manager
National Weather Service
Boise, ID 83705
- B. Interagency Wildland Fire Agencies:
NIFC Fire Weather Program Manager
National Interagency Fire Center
Boise, ID 83705

DEFINITIONS

When the following terms are used in this Agreement or in an AOP, such terms will have the meanings stated below.

- A. **Annual Operating Plan for Fire Weather Services (AOP).** A procedural guide, based on the National Interagency Agreement and applicable Geographic Area Memorandum of Agreement, which describes fire meteorological services provided within the Geographic Area of responsibility, including the National Interagency Fire Center. At a minimum, the Annual Operating Plan will include the items in Appendix 1, Annual Operating Plan - Required Elements and Suggested Format.
- B. **Assessment:** Fire weather and/or fire danger product based on a thorough evaluation of all pertinent sources of meteorological and fire danger information.
- C. **Basic Meteorological Services.** Basic meteorological services are those state-of-the-science meteorological forecasts, warnings, observations and statements produced at a designated NWS office.
- D. **Fire Weather Watch.** Fire Weather Watch is issued to advise of conditions, which could result in extensive wildfire occurrence or extreme fire behavior, which are expected to develop in the next 12 to 48 hours, but not more than 72 hours. In cases of dry lightning, a Fire Weather Watch may be issued for the next 12 hours. Fire Weather Watch meteorological and fuel criteria will be defined in the AOP.
- E. **Geographic Area:** A geographic boundary designated by Interagency Wildland Fire Agencies, where these agencies work together in the coordination and effective utilization of resources within their boundaries. The National Interagency Mobilization Guide identifies the areas encompassed by the eleven Geographic Areas.
- F. **Geographic Area Memorandum of Agreement.** A document, based on the National Interagency Agreement for Meteorological Services, which establishes local policy to meet unique needs of a geographic area.
- G. **Incident Meteorologist (IMET).** A Meteorologist specially trained to provide on-site meteorological support of Wildland Fire Agency designated incidents.
- H. **Non-Routine Services.** Meteorological services uniquely required by Interagency Wildland Fire Agencies, which usually are not provided from a designated NWS office.
- I. **On-Site Meteorological Services.** Special service which dedicates an Incident Meteorologist to an incident so that they are removed from their normal duties.
- J. **Predictive Services:** Those Geographic Area/National level fire weather and/or fire danger services and products produced by Wildland Fire Agency meteorologists in support of resource allocation and prioritization.
- K. **Red Flag Warning.** Red Flag Warning is used to warn of impending or actually occurring critical weather conditions that could result in extensive wildland fire activity. A warning will be issued when the forecast time of onset is less than 24 hours. Red Flag Warning meteorological and fuel criteria will be defined in the AOP.
- L. **Routine Fire Weather Forecasts.** A Routine Fire Weather Forecast is a scheduled narrative and/or matrix forecast of weather parameters pertinent

fire management activities in support of protection of life, property, and resources at risk in a given area. The number of parameters may vary due to regional weather requirements, but normally include a brief weather synopsis, expected weather and clouds, duration of precipitation, maximum and minimum temperature/relative humidity, wind direction and speed, transport and stability parameters, and lightning activity level. These forecasts normally cover the next 48 hours and may include input for the computation of National Fire Danger Rating System indices. These forecasts may also include long-range outlooks.

M. **Site Specific Forecasts.** Site-specific forecasts are issued when requested by Interagency Wildland Fire Agencies for wildland fires. These forecasts differ from routine fire weather forecasts by incorporating greater detail in timing, higher resolution of terrain influences, and incorporate meso-scale and sometimes micro-scale weather influences impacting the site. These may be generated from an office with Wildland Fire supplied information (i.e., location, weather observations, objectives) or generated by an Incident Meteorologist assigned to the incident. Forecast formats may vary but all are highly tailored to satisfy requirements of the incident objectives.

N. **Wildland Fires.** All ignitions that occur on wildlands.

SIGNATURE PAGE

Director, Bureau of Land Management

Date

Assistant Secretary, Indian Affairs

Date

Director, U.S. Fish and Wildlife Service

Date

Director, National Park Service

Date

Chief, USDA Forest Service

Date

President, National Association of State Foresters

Date

NOAA Assistant Administrator for Weather Services

Date

Appendix 1
Annual Operating Plan
Required Elements And Suggested Format

INTRODUCTION

The introduction will include a general statement of purpose and an explanation of the relationship between the Annual Operating Plan and the Interagency Agreement for Meteorological Services will be referenced.

SERVICE AREA AND ORGANIZATIONAL DIRECTORY

- A. List of weather offices and points of contact
- B. List of agencies participating

SERVICES PROVIDED BY THE NATIONAL WEATHER SERVICE

- A. Basic Services
 - 1. Routine fire weather forecasts
 - a) Issuance (seasonal, daily)
 - b) How forecast is issued and accessed
 - c) Content of the forecast
 - 2. Site-specific wildland fire forecasts
 - a) Criteria
 - b) Contents
 - c) Procedures
 - 3. Fire Weather Watch, Red Flag Programs
 - a) Criteria
 - b) Contents
 - c) Procedures
 - 4. Participation in Interagency Groups
- B. Special Services. Procedures for obtaining and billing for special services.
- C. Training. Procedures for obtaining and billing for special services.

Wildland Fire AGENCY RESPONSIBILITIES

- A. Operational support and predictive services.
 - 1. Program management
 - 2. Monitoring, Feedback and Improvement
 - 3. Technology Transfer
 - 4. Agency computer systems
 - 5. Fire weather observations
 - 6. On-site support
 - 7. Training

JOINT RESPONSIBILITIES

Negotiate service boundaries and fire weather forecast zones to meet customer and forecaster needs.

EFFECTIVE DATES OF THE AOP

SIGNATURE PAGE

APPENDICES

- A. Interagency Agreement for Meteorological Services in Support of Agencies with Land and Fire Management Responsibilities.
- B. Fire Weather zone maps
- C. Catalog of fire weather observation sites

APPENDIX L

Preparedness Level Description

Levels of preparedness will be determined daily throughout the Alaska fire season in the Coastal Region. Criteria used to determine daily level of preparedness include:

1. The current and forecasted weather.
2. Wildland fire activity statewide.
3. Resources committed, demand for resources, and predicted demand. Types include:
Tactical resources include smokejumpers, air tankers, air attack, and lead planes.
Non-tactical resources include helicopters, engines, overhead, and crews.
Critical resources include radio systems, equipment and supply.
4. Historical high-risk periods.
5. All risk incident support.
6. Planned and ongoing prescribed fire operations.

These levels are based on the existing wildland fire activity, probability of new wildland fire starts, burning conditions, prescribed fire activities and the commitment of resources.

The Coastal Regional Fire Management Officer will be responsible for daily monitoring of preparedness criteria in each of the Coastal Region Areas to determine the appropriate level of preparedness for the Region.

PREPAREDNESS LEVELS

- I. Preparedness Level I - No significant fire activity, most units having low to moderate probability of ignition and low burning condition in all fuel types. Resistance to extinguishment by initial attack forces is low.
- II. Preparedness level II - Multiple units experiencing fire starts or one unit experiencing multiple starts. Probability of ignition is low to moderate and burning conditions generally low to moderate in all fuel types. Resistance to extinguishment by initial attack forces is low to moderate. Minimal mobilization of local unit resources with no shortages of tactical resources.
- III. Preparedness level III - Multiple units experiencing fire starts and/or one (1) project fire. Probability of ignition is high, burning conditions of moderate to high in all fuel types. Resistance to control is moderate to high; resistance to extinguishment is moderate. Up to 50% of non-tactical resources being mobilized, up to 75% of tactical resources committed to new ignitions. Existing weather pattern supporting fire activity is forecasted to remain for the next 48 hours.
- IV. Preparedness level IV - Multiple units experiencing fire starts and/or two (2) project fires. Probability of ignition is high and burning conditions of high to extreme in all fuel types. Resistance to control is high to extreme and resistance to extinguishment is high. Over 50% of non-tactical resources are committed, over 75% of tactical resources are committed to new ignitions. Existing weather pattern supporting fire activity is forecasted to remain for the next 3 to 5 days.

- V. Preparedness level V - Multiple units experiencing fire starts and/or three (3) or more project fires. Probability of ignition is high and burning conditions of extreme in all fuel types. Resistance to control is high to extreme and resistance to extinguishment is high. Over 75% of non-tactical resources are committed, over 75% of tactical resources are committed to new ignitions. Existing weather pattern supporting fire activity is forecasted to remain for the next 3 to 5 days.